Seventh Grade Classification Unit- Parent Guide

One of the most interesting things about life on Earth is the immense variety of living things that are present at any given time. Millions of different and unique organisms inhabit our planet, some strikingly similar, and some vastly different. As evidenced by the many traceable sequences of the fossil record, we know that many new life forms have emerged over time, and many old ones have faded away.

Scientific classification has changed over many years of scientific study. Aristotle was one of the first scientists to organize living things. He divided organisms as living on land, water, or air dwelling. Early scientists also classified organisms simply as plants and animals. The invention of the microscope made it possible for scientists to observe a larger diversity of organism than they previously knew existed. Carolus Linnaeus founded modern taxonomy in the 1700's. Taxonomy is the science of describing, classifying, and naming living organisms. Linnaeus called the plant and animal groups kingdoms. But, unlike Aristotle, Linnaeus divided kingdom into five levels: class, order, genus, species, and variety. Organisms were placed in these levels based on traits, including similarities of body parts, physical form such as size, shape, and methods of getting food. Today scientists use six kingdoms to classify organisms. In the 1990's the addition of three large domain groups was added to further classify organisms.

In order to better understand and organize such diversity, biologists have developed a system of classification that divides organisms into a ladder of groups and subgroups based on shared similarities or differences in the organism's structure and behavior.

The chart below lists the six kingdoms of living things as classified in the today's classification system:

KINGDOM CLASSIFICATIONOF LIVING THINGS

DOMAIN Eukarya	Dog	Wolf	Coyote	Fox	Lion Seal	Mouse Human	Whale Bat	Fish Snake	Earthworm Moth	Paramecium Tree
KINGDOM Animalia	Dog	Wolf	Coyote	Fox	Lion Seal	Mouse Human	Whale Bat	Fish Snake	Earthworm Moth	
PHYLUM Chordata	Dog	Wolf	Coyote	Fox	Lion Seal	Mouse Human	Whale Bat	Fish Snake		
CLASS Mammalia	Dog	Wolf	Coyote	Fox	Lion Seal	Mouse Human	Whale Bat			
ORDER Carnivora	Dog	Wolf	Coyote	Fox	Lion Seal					
FAMILY Canidae	Dog	Wolf	Coyote	Fox						
GENUS Canis	Dog	Wolf	Coyote							
SPECIES Canis lupus	Dog	Wolf								

Linnaeus created a system for creating scientific names. Each species was given a two part name. The first part is the genus name, the second part is the species name. Scientists around the world use this system for naming organisms. The rules for writing scientific names include the following:

- Capitalize the <u>first</u> letter of the genus name.
- Do <u>not</u> capitalize the species name
- Both names must be <u>underlined</u> or *italicized*
- Example: human- *Homo sapiens*

Characteristics of the Six Kingdoms

	Eubacteria	**Archaebacteria**	**Protista**	**Fungus**	**Plant**	**Animal**
Cell Type	prokaryotic	prokaryotic	eukaryotic	eukaryotic	eukaryotic	eukaryotic
Number of Cells	unicellular	unicellular	most unicellular	most multicellular	multicellular	multicellular
Level of Organization	cell	cell	most cell	most tissue	systems	systems
Cell Wall	Yes	Yes	pectin or none(green algae: cellulose)	chitin	cellulose	none
Mode of Nutrition	Auto/hetero-troph	Auto/Heterotroph	Auto/Hetero-troph	Heterotroph	Autotroph	Heterotroph
Reproduction	asexual	asexual	sexual/asexual	sexual/ asexual	sexual/ asexual	sexual/ asexual
Symbiotic Relationship	fix nitrogen\n\nmany pathogenic\n\naid in human digestion	aid in digestion	many pathogenic (malaria, African sleeping sickness, amoebic dysentery)\n\ncellulose digestion	many pathogenic (athlete's foot, yeast infection, ringworm)\n\nlichen	mistletoe	parasitic worms, barnacles, clownfish
Ecological Importance	fix nitrogen\n\ndecomposers	decomposers	algae major aquatic oxygen & food producers	decomposers	major oxygen & food source (photo-synthesis)	human impact on environment
Examples	*Escherichia coli*\n\n*Streptococcus*	methanobacteria	algae, diatoms, amoebas,	lichen, yeast, mushrooms	trees\n\nflowers\n\ngrass	sponges\n\n↓\n\nmammals